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GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
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PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
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*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: **MOISTURE CROSSLINKABLE POLYMERIC COMPOSITION CONTAINING SPECIAL ANTIOXIDANTS**

(57) Abstract: The present invention is a moisture-crosslinkable polymeric composition comprising (a) a silane-functionalized olefinic polymer, (b) an acidic silanol condensation catalyst, and (c) an antioxidant, not having a tertiary alkyl-substituted aryl or phenolic group, wherein the polymeric composition does not generate a high amount of foul-smelling or combustible gases. Alternatively, the antioxidant is substantially free of substituents vulnerable to dealkylation in the presence of the acidic silanol condensation catalyst and at conventional processing conditions. The invention also includes methods for preparing the moisture-crosslinkable polymeric composition. The moisture-crosslinkable polymeric compositions can be used as a coating and applied over a wire or a cable.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/019910

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08F230/08 C08L43/04 C08K5/54 C08L83/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08F C08L C08K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 365 289 A (BP CHEM INT LTD) 25 April 1990 (1990-04-25) page 4, line 57; example 1	1-15
X	EP 0 862 187 A (SERVICIOS CONDUMEX S A DE C V) 2 September 1998 (1998-09-02) page 5, lines 12-32	1-15
X	US 4 343 733 A (MARINGER MELVIN F ET AL) 10 August 1982 (1982-08-10) column 4, lines 27-30	1-15

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

Information on patent family members



International Application No
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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0365289	A	25-04-1990	AU 635225 B2	18-03-1993
			AU 4353389 A	26-04-1990
			CA 2001169 A1	21-04-1990
			CN 1044109 A	25-07-1990
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			SE 8003598 A	15-11-1980

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 63162A	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/US2004/019910	International filing date (day/month/year) 22.06.2004	Priority date (day/month/year) 25.06.2003	
International Patent Classification (IPC) or national classification and IPC C08F230/08, C08L43/04, C08K5/54, C08L83/04			
Applicant UNION CARBIDE CHEMICALS & PLASTICS TECHNOLOGY ...			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 25.01.2005		Date of completion of this report 29.06.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer R. BUESTRIOM Telephone No. +49 89 2399- 7473 	

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/019910

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-8 as originally filed

Claims, Numbers

1-15 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/019910

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3-11,13
	No: Claims	1,2,12,14-15
Inventive step (IS)	Yes: Claims	
	No: Claims	3-11,13
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item IV.

- 1 The following documents are referred to in this communication:

D1: EP0365289

D2: EP0862187

D3: US4343733

- 2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 2, 12 and 14-15 is not new in the sense of Article 33(2) PCT.

Document D1 discloses a moisture curable composition for wire and cable applications comprising:

- (a) a silane-functionalized olefinic polymer,
- (b) an acidic silanol condensation catalyst (i.e. organic titanates, cf. D1, p.4, l.57)
- (c) an antioxidant; not having a tertiary alkyl-substituted aryl or phenolic group (=DSTDP or Zinc-2-mercaptotoluilimidazol, cf. D1, example 1).

Therefore the subject-matter of claims 1, 2, 12 and 14-15 is not novel over D1.

Document D2 discloses a low smoke emission moisture curable composition comprising:

- (a) a silane-functionalized olefinic polymer,
- (b) an acidic silanol condensation catalyst (fatty acid or trihydrated alumina)
- (c) an antioxidant; not having a tertiary alkyl-substituted aryl or phenolic group (=DSTDP, cf. D2, p.5, l.12-32),

and a wire or cable prepared from it.

Therefore the subject-matter of claims 1, 2, 12 and 14-15 is not novel over D2.

Document D3 discloses a moisture curable composition for wire and cable applications comprising:

- (a) a silane-functionalized olefinic polymer (cf. D3, col.4, l.35-39),
- (b) an acidic silanol condensation catalyst,
- (c) an antioxidant; not having a tertiary alkyl-substituted aryl or phenolic group (=OABH, cf. D3, col. 4, l.27-30).

Therefore the subject-matter of claims 1, 2, 12 and 14-15 is not novel over D3.

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/US2004/019910

- 3 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 3-11 and 13 is not inventive in the sense of Article 33(3) PCT.

The subject-matter of independent claim 13 of the present application differs from D1 in that component (b) is selected from alkaryl sulfonic acids, arylalkyl sulfonic acids and alkylated aryl disulfonic acids. Since it is not shown in the present application that the use of component (b) produces a surprising new effect, the presence of an inventive step can not be acknowledged.

Dependent claims 3-11 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step.